gained twelve pounds during her stay at the hospital. She was evidently half-starved before entrance.

After a fortnight at Waverly she reported to me at the out-patient department, looking well and bright. The appearance of her chest at this time—a month from the time I first saw her—is shown in Fig. 3. There was *no prominence* at the site of either tumor. One inch below the sternal notch in the median line was the opening of a small sinus which the probe, manipulated by Dr. C. A. Porter, entered for a distance of nearly three inches, the direction being mostly downward parallel to the anterior surface of the sternum. The point of the probe when in this position could not be felt from the outside, and this, together with the fact that the probe passed first backward toward the spine and then downward parallel to the sternum, convinced Dr. Porter that his probe had passed entirely through an opening in the bone and was in a sinus behind it. At the bottom of the lower opening near the ensiform rough bone could be felt with the probe. Dr. W. W. Gannett saw her at my request soon after this, and agreed with Dr. Cutler that there was no aneurism present. (An X-ray picture was taken at my request. Of this I shall speak later.)

I saw the patient several times in August, and found her always doing well and at work, though a small sinus persisted over the point where the upper tumor had been, and the fluid in this sinus could be seen to rise and fall with every heart beat. She dressed this sinus at home with sterile dressings, for which she came to the hospital now and then.

On Saturday, September 9th, she reported at the out-patient department, and, as I was then in Puerto Rico, she saw Dr. A. K. Stone, who found her to be doing well, and encouraged her as to her future, but she says that during September she noticed a sound described as like water falling drop by drop on a tin roof. The sound seemed to come from the region of the sinus in the sternum, and her husband states that it could sometimes be heard twelve feet away.

On the evening of September 15th she seemed very well and bright (her husband says) and went to bed feeling as usual. At midnight she got up and took up a pitcher of water, probably for a drink. There was the sound of a gush and a cry. The husband jumped up, lighted a match, and found her dead in a pool of blood issuing from her chest. There was no autopsy.

The remarkable points about this case are:

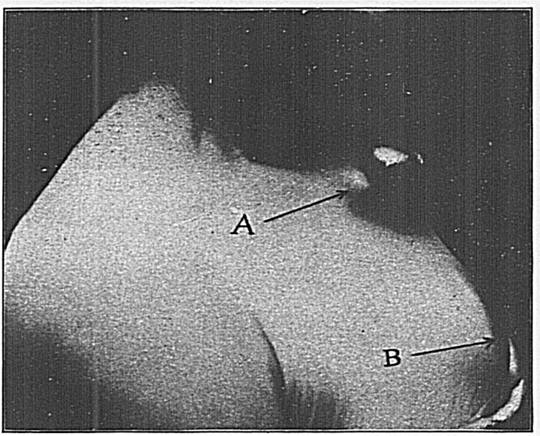
1. That the aneurism eroded and perforated the sternum in two places without ever causing pain or any other pressure symptoms.

2. That it presented externally as a tumor, and then disappeared under treatment by iodide of potassium, the skin rupturing without letting out any blood. This series of events was repeated several times in the course of seven years.

I do not see how the diagnosis of aneurism can be in doubt in view of the termination of the case. Whether the process going on in the sternum may have been partly gummatous and partly due to the pressure of the aneurism, and exactly what was the cheesy material which was discharged during her stay in the hospital, I do not know. The areola around the black. A systolic murmur could be heard over the tumor. (See Figs. 1 and 2, A.) I was a good deal afraid that rupture might occur then and there, and so without further investigation hurried the patient into the hospital.

There, within a few days, the tumor broke. No blood came out, but only some puriform material. On more careful questioning it appeared that the swelling first made its appearance seven years before, and in the course of a few months attained nearly its present size and characteristics. It was at that time announced by a physician to be an aneurism of the aorta, but under treatment by iodide of potassium (internally) it diminished rapidly in size until no external tumor was visible. The patient had always enjoyed good health, but had a series of seven successive miscarriages. Except for this there was nothing suggestive of syphilis in her history. The miscarriages occurred at intervals of from one to three months after conception. The first appearance of the tumor was attributed by the patient to a strain due to cornet playing. In the course of the last seven years *the tumor has come and gone several times*, becoming more noticeable during periods of hard work, and its disappearance occurring usually while she was taking potassic iodide. Her general health has always remained good. There has been no pain about the tumor or elsewhere, no dyspnœa, dysphagia, cough, or other pressure symptoms. Her appetite has never failed.

FIG. 1.

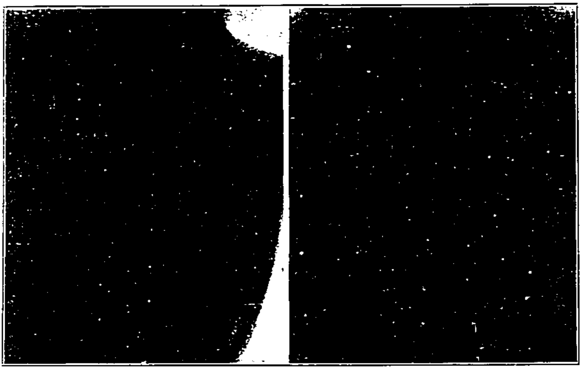


Tumor before rupture. B indicates the position of the lower swelling.

probe showed that the hole through the sternum was a comparatively small one, not nearly as large as the base of the tumor which presented over it. I suppose that at times the clot inside the sac was sufficiently firm to prevent the blood from forcing its way out through the perforated sternum, while at other times the blood would ooze through it and clot outside the sternum, so as to form the external tumor which was present when I first saw her.

The accompanying radiographs (Fig. 4) should have prevented the mistake in diagnosis. But I am ashamed to say that none of those who saw her took a sufficiently intelligent interest in them to see their significance until it was too late.

FIG. 4.



Radiographs.

We looked at them solely for evidence as to perforation of the sternum. Finding no gap in the sternum shadow, the false inference was drawn that no such perforation was present. But we should have known that the position of the spinal column is such that perforations of the sternum even of considerable size do not show on a radiographic plate.

It is perfectly easy now to see that there is a tumor in the region of the aortic arch (see Fig. 4, A), and to distinguish the heart (B) and the liver (C) below. But, somehow, this did not force itself upon us at that time. The moral obviously is that we should know more about the interpretation of radiographic plates.

AN EXPERIMENT IN THE TRANSMISSION OF SYPHILIS TO CALVES.[1]

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THAT syphilis is a disease peculiar to man and incapable of transmission to the lower animals is generally accepted by the medical profession, and upon such firm ground does this opinion appear to stand that most text-books make the statement without going into the details of the experiments on which it is based. Apart from the scientific interest which the subject bears, there is a practical importance attaching to it which must hold our attention, owing to the fact that the opponents of vaccination against smallpox lay great stress on the alleged danger of transmitting syphilis by vaccination, some of them even going so far as to claim that syphilis and vaccinia are one and the same disease. The agitation against vaccination in our own city and State during the year just closed, and the assertions made by certain doctors before a legislative committee of the dangers involved in the practice, must be fresh in the minds of all. It was this agitation that suggested to Dr. Leonard Pearson and myself the advisability of repeating once more the attempt to produce syphilis in calves by inoculation from man.

In looking over the record of experiments on this subject I have been unable to find any report of the successful inoculation of bovines, failure having resulted in every instance of which I have knowledge, though there are experimenters who have claimed success in inoculating rabbits, guinea-pigs, cats, dogs, horses, pigs, and monkeys—a fact which is somewhat significant.

The scope of this paper does not permit me to go into a critical review of past experiments, nor, indeed, do I think it necessary. I have been impressed, however, by the fact that several of those who have claimed success have employed material from soft chancres, while others have used tuberculous matter, as suggested by Striker, who examined the supposed syphilitic nodules induced by Hansell, and also by Kaposi in regard to the same work.

The admirable work of Dr. Ernesto Duplan, done in the pathological laboratory of the University of Pennsylvania, and detailed in his graduation thesis (1884), deserves mention. He made seventy inoculations, using fifteen rabbits, five dogs, four guinea-pigs, and four apes, which he imported from Mexico himself for the purpose. His results were all negative, with the exception of two rabbits inoculated with pus from a soft chancre. In these an indurated lump formed at the point of inoculation, which opened spontaneously on the twelfth and thirteenth days respectively, discharging thick, cheesy pus. With this pus four rabbits were inoculated, one of which died of tuberculosis at the end of four weeks, the others showing no ill effect. Although he cites these two cases as examples of successful transmission of syphilis to rabbits, I think it is clear that he was dealing with tuberculosis.

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[1] Read before the Pathological Society of Philadelphia, February 8, 1900.

Among the lower animals there is only one disease known that bears any resemblance to syphilis—dourine or maladie du coit—sometimes called also syphilis of solipedes. This remarkable and interesting disease has been known for more than a hundred years, and is supposed by some to have had its origin in the coitus of syphilitic Arabs with she-asses. There is, however, absolutely no evidence of this, it being wholly theory, while on the contrary all attempts to produce dourine in mares and she-asses by infection with syphilitic virus have failed completely. Furthermore, the specifics against syphilis—mercury and iodide of potash—have no effect in dourine. The disease has been seen only twice in the United States, both times in imported stallions. It has been carefully studied in Europe, notably by the able veterinarians of the Alfort school, so that it is possible to affirm with certainty that dourine and syphilis are two entirely distinct diseases.

For our experiment two calves were selected, one a heifer, about eight months old, the other a bull, about fourteen months old, both in good condition, though the heifer was known to be tuberculous. Both had been on our premises and under observation for some months. The method of inoculation chosen was that practised by some of our best vaccine producers. The area selected was shaved, washed thoroughly with soap and water, and well rinsed with sterile water, after which a surface about the size of a silver half-dollar was scraped with a sharp scalpel until a slightly bloody serum began to exude. It was next scarified with the ordinary scarifier used in vaccination, in two directions at right angles to each other, and into this the syphilitic material was rubbed for not less than five minutes. A second scarification was then done, and the animals kept down until the surface had dried. The heifer (Ref. No. 26107) was inoculated in two places, on the inner side of the hind leg high up and on the abdomen just anterior to the udder, while the bull (Ref. No. 26130) was inoculated only on the inner side of the hind leg.

The material used was obtained through the kindness of a physician from a patient in the venereal ward of a hospital with which he is connected, and consisted of scrapings from a mucous patch on the lip and a sore about the genitals. The case was in the early secondary stage and the material taken at the commencement of treatment. It was collected at 11.30 A.M., and the inoculations made at 2 P.M. the same day.

On the next day the scarified areas were covered with a thin scab, and were surrounded by a narrow zone of slight redness, which disappeared during the next thirty-six hours. By the fifth day the scabs